

# DELL EMC AVAMAR GRANULAR OR FILE LEVEL RESTORE FROM DATA DOMAIN CLOUD TIER

## A Detailed Review

### **ABSTRACT**

This white paper describes the FLR/GLR from cloud tier solution that supports for restoring a file or a piece of backup from Data Domain cloud tier without recalling the whole backup.

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## EXECUTIVE SUMMARY

The Avamar Data Domain cloud tier solution leverages the Data Domain's cloud functionalities to allow customers to migrate the long term retention backups from Data Domain local storage to cloud storage and restore the long term retention backups from cloud storage to clients.



For the backup stored on cloud, Granular or File Level Restore (GLR/FLR) from Data Domain cloud tier is the method to restore a piece of data or files of the backup from the cloud tier to client. Previously, without the GLR/FLR feature, Avamar requires to recall the whole backup from cloud to active tier even when customers only want to restore a part of backup from cloud tier. Currently, with the GLR/FLR feature, Avamar only needs to accurately read the data what customers want to restore from cloud tier to client. Thus, the GLR/FLR feature saves data transfer from cloud tier to local tier, it also saves money for customers.

Avamar currently only supports the GLR/FLR feature for ECS cloud unit, Avamar does not support the GLR/FLR feature for non-ECS cloud unit.

## AUDIENCE

The audience is the one who has the basic knowledge of Avamar and Data Domain system.

## BUSINESS CASE

When customers want to restore a part of backup from Data Domain cloud tier to client, without the GLR/FLR feature, Avamar has to recall more data than customers need from cloud tier to local tier. With the GLR/FLR feature now, Avamar only accurately read the data what customers' need from cloud tier to local tier. The feature saves data transfer and also saves money for customers. Because the downloading data transfer from cloud storage to local is usually charged by cloud provider.

## KEY RESULTS

The GLR/FLR feature saves money for customers when customers want to restore a part of backup from Data Domain cloud tier to client.

# AVAMAR DATA DOMAIN CLOUD TIER SOLUTION

## ARCHITECTURE

The GLR/FLR feature relies on Data Domain's capability of directly reading data from the cloud tier. Currently Data Domain only supports 'direct cloud read' for ECS cloud provider, hence GLR/FLR also only supports ECS cloud provider. Avamar client uses the DDBoost APIs to read the data on the cloud tier.

There is no additional configuration for the customer to enable the GLR/FLR feature. When customers restore a part of backup from the cloud tier to client, Avamar automatically triggers a GLR/FLR restore to save data transfer for customers. The following figure shows how the GLR/FLR feature works.

1. The customer selects to restore a part of backup from Data Domain cloud tier.
2. Avamar analyzes the job and starts the GLR/FLR restore when the cloud unit is ECS cloud unit. Currently, Avamar only supports GLR/FLR for ECS cloud unit.
3. Avamar sends restore work job to the client.
4. The client reads the data from cloud tier to local storage via DDBoost API just like the data is stored in the active tier of the Data Domain.
5. The GLR/FLR is completed when all necessary data are read from cloud tier.
6. After GLR/FLR, the backup is still stored in cloud tier.

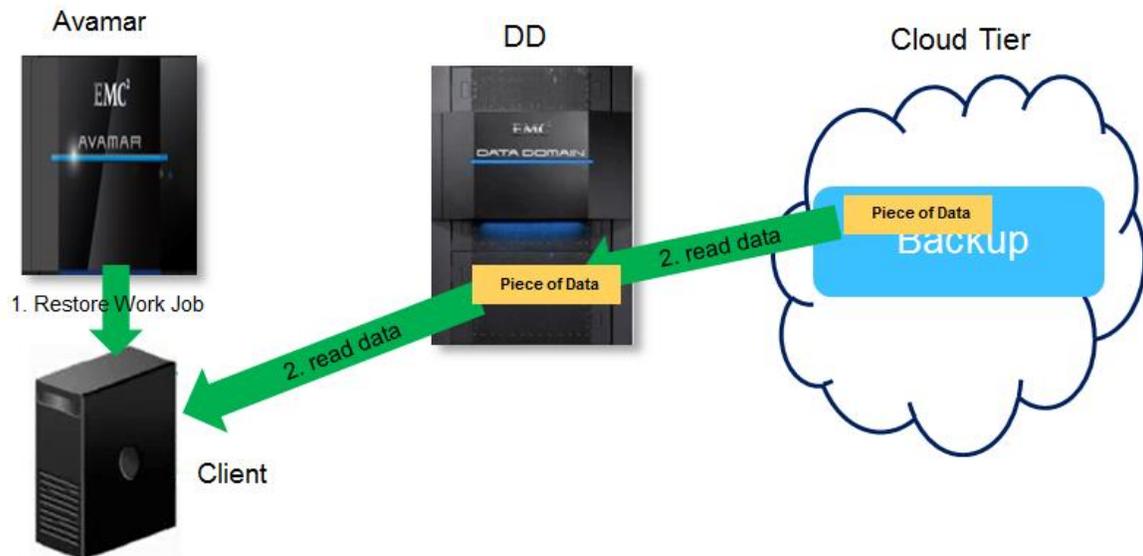


Figure 1. Workflow of GLR/FLR

## WORKFLOWS

The following contents show how the GLR/FLR feature works when the customer restores a part of backup from cloud tier. There is no additional configuration for customers to use GLR/FLR feature. When the customer selects to restore a part of backup from cloud tier, Avamar will automatically do GLR/FLR for the customer.

1. On Avamar MCGUI, select a backup which is stored on ECS cloud unit. And then select to restore a part of the backup.

The screenshot shows the Avamar MCGUI interface. At the top, there are tabs for 'Backup', 'Restore', and 'Manage'. Below these, there are sorting options 'By Date' and 'By File/Folder'. A calendar for May 09, 2018 is visible on the left. The main table lists backup details:

Location	Number	Date & Time (CST)	Name	Plugin	Retention	Expires	Size	Server	Type	Tier
Local	3	2018-05-09 11:27 AM	MOD-1525836417475	Linux File System	N	2018-07-08 11:26 AM	299.2 KB	DD - 10.62.229.124	Full	Cloud

The 'Tier' column value 'Cloud' is highlighted with a red box. Below the table, the 'Contents of Backup named MOD-1525836417475' are shown. A file tree on the left includes folders like 'tmp' and 'data'. A context menu is open over the 'data' folder, with the 'Restore Now...' option highlighted in blue and circled in red.

2. Avamar does a GLR/FLR restore from the cloud tier to client. You will see there is only one restore work job in Activity Manager.

<input checked="" type="checkbox"/> Completed		2018-05-08 14:35	00h:01m:38s	🕒 2018-05-08 14:37	Restore	DD - dd9800-01.datadomain.com	97.7 MB	100%
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3. Then select the same backup, and select to restore the whole backup.

This screenshot is identical to the one above, showing the same backup selected. However, in the file tree, the root directory '/' is selected, and the 'Restore Now...' option in the context menu is highlighted in red, indicating a full backup restore.

4. Avamar does not do GLR/FLR restore, because the whole backup is restored instead of a part of backup. Thus, Avamar firstly recall the backup and then do a full backup restore. You will see 2 work jobs in the Activity Manager.

<input checked="" type="checkbox"/> Completed		2018-05-08 16:57	00h:04m:47s	🕒 2018-05-08 17:02	Restore	DD - dd9800-01.datadomain.com	97.7 MB	100%
<input checked="" type="checkbox"/> Completed		2018-05-08 16:57	00h:00m:06s	2018-05-08 16:57	Recall	DD - dd9800-01.datadomain.com	97.7 MB	100%

## CONCLUTION

There is no additional configuration for customers to use GLR/FLR feature. Avamar automatically do GLR/FLR when customers restore a part of backup from Data Domain cloud tier to client. The GLR/FLR feature saves money for customers when customers want to restore a part of backup from Data Domain cloud tier to client.

## REFERENCE

From additional information please review the following User Guides:

- Avamar Administration Guide - AvAdministration.pdf
- Avamar and Data Domain Integration Guide - AvDataDomain.pdf